



# Massapequa Water District

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September 8, 2016

Mr. James B. Harrington, P.E.  
Director, Remedial Bureau A  
Division of Environmental Remediation  
New York State Department of Environmental Conservation  
625 Broadway  
Albany, New York 12233-7012

**Re: Massapequa Water District  
NYSDEC Remedial Options Report  
Grumman Aerospace Bethpage Facility  
Groundwater Plume Hydraulic Containment Report**

Dear Mr. Harrington:

The drinking water supply public health crises in Flint, Michigan, and right here in our very own state in Hoosick Falls, has brought to blinding light the need for proactive protection of public drinking water supplies everywhere. Government at all levels has the duty and responsibility to protect public health and the environment through its laws, regulations and programs. Until recently, the government of New York State has failed in its duty and responsibility over the past three decades to impose its will to deal swiftly and effectively with one of the largest and most complex groundwater contamination crises in the nation, let alone the State. That failure has left the public water suppliers of southeast Nassau County, including the Massapequa Water District, on their own to combat the mounting threat and impacts to its drinking water supplies. Now, with the renewed commitment, force and direction of New York State, we finally, after all these years, have hope our government will exhibit the will we so desperately need for the protection of our public health and the environment. We firmly support the State and call on all interested parties to show their support as well. This mission is about protecting not only ourselves, but our future generations. We cannot afford to get lost in the details. We are obliged to protect our drinking water supplies to sustain our future.

Whenever remedial alternatives are evaluated in the many reports we have seen over the decades, the State has always allowed the cost of alternatives to be an overly significant criteria. In our opinion, the PRPs have been misleading and essentially forcing the State to accept lesser alternatives based on cost. Likely the single most significant lost opportunity was in the process leading up to the 2001 and 2003 OU-2 RODS, whereby an alternative including extraction and hydraulic containment at Hempstead Turnpike. The alternative included full plume containment, which at the time had a present value of \$63

*Committed to deliver and preserve our water supply for the welfare, health and safety  
of the inhabitants of the Massapequa Water District*

million. The alternative, although clearly the most beneficial to protection of public health and the environment, was dismissed due to cost, a huge mistake. Now, after that missed opportunity, the State is proceeding with full plume containment and evaluating alternatives at present value costs ranging from \$200 million to \$600 million. The State should not accept any argument from any interested party that the cost is too much. Yes, be as cost effective as possible. We support and expect that. However, in the context of one of the most complex groundwater disasters in the nation, and the spanning of multiple generations, of course costs will be significant. The plume was permitted to get to this extreme point. Please do not permit it to get even worse because of money.

As you know, the Massapequa Water District has been offering ideas and suggestions to the State for years. Although we support the State, we feel that there are other opportunities that need to be further evaluated and brought into better focus to set the plan on the best course, so we offer the following.

#### Treated Groundwater Discharge

Unless there was additional analysis performed that did not make it into the report, the discharge of treated groundwater alternatives seem way too limited. The only options identified are in essence single discharge strategies to Massapequa Creek or Cedar Creek WPCP. Although the report makes reference to the potential of combining discharge strategies, no such approach is offered. Whatever decision is made, we feel it's critical to have multiple discharge strategies included in the final selection for purposes of redundancy and water management.

The report dismisses recharge basins and injection wells without detailed evaluation and analysis, with which we completely disagree. Recharge of the aquifer should be an element of the overall discharge strategy. The comment that "...all three of the remedial options will result in the loss of hundreds of billions of gallons of freshwater from a sole source aquifer" is based on a too narrowly focused conclusion of available discharge options, so we disagree.

Recharge Basins - The report grossly overestimates the land area needs of 30 – 60 acres to recharge 10 – 20 MGD. Additionally, the report states that recharge basins are not technically feasible as large groundwater disposal rates prohibit use of recharge basins. Unaware of what detailed analysis was performed to reach these conclusion, we offer, as we know that State already has, 20 years of operational performance of the ONCT recharge basins. Essentially, the existing ONCT recharge basins have the capacity to discharge about 8 MGD using a land area of 8 – 9 acres. Not only are recharge basins feasible, existing or newly constructed basins should be viable alternatives used in combination with other methods of discharge.

Injection Wells – The report rejects injection wells as a potential discharge method because it would require a very large number of wells, require a lot of land, be potentially affected by shallow depth to GW, and high operation and maintenance costs. We are unaware of what technical analysis was performed to reject injection wells, but we disagree with the outright rejection. Yes, there are operational challenges with injection wells, however the benefit of shallow and deep recharge need to be considered. Just as extraction wells are aligned to remove 19 MGD along an approximate 2

mile length, so too the same could be applied to injection wells. Until adequate analysis is performed to reject injection wells, we feel their potential should remain as an alternative.

In addition to the strategies identified for discharge to Massapequa Creek and the Cedar Creek WPCP, an alternative exists that would couple water reuse with recharge to minimize the loss of groundwater to surface waters. We ask that the State include the following scenario in its planning process:

The discharge from the central water treatment plant would be conveyed to a combination of Massapequa Creek, diffusion wells, recharge basins and irrigation pond(s) at Bethpage State Park. Currently, Bethpage State Park utilizes groundwater supply wells with a total authorized capacity of 4.4 MGD to irrigate the golf courses. In lieu of pumping irrigation wells, energy and water conservation could be employed to instead capture a portion of the discharge and convey it to a newly constructed pond(s) at the park. The water collected at the pond could be used for all irrigation (water reuse). Overflow recharge basin(s) could be constructed to accept pond overflow during non-irrigation periods or periods where higher recharge needs exist. 10 – 12 acres could facilitate a recharge of 8 – 10 MGD, depending on the geology. The discharge line to the park could be run along Bethpage State Parkway, which is about a 2+ mile length, depending on the location of the treatment plant, pond and recharge. Over this 2 mile length, diffusion wells could be installed (say 20 wells at 500 feet spacing) to also accept plant discharge. These can be primary, redundant or expansion discharge capacity wells, depending on other discharge methods, and could have a total recharge capacity of 10 – 15 MGD. Such a line of diffusion wells could also have the benefit of creating a clean water boundary east of the OU-3 plume and mitigate its potential to move further east. Lastly, discharge to Massapequa Creek would not have to be at full capacity, but rather have a high to low range depending on precipitation and other relevant factors. This approach to a combined discharge system would provide ample capacity for redundancy and flexibility to meet varying operational conditions.

#### OU-2 and OU-3 Hot Spot Treatment

The report is silent as to the schedule and impact of the OU-2 and OU-3 hot spot treatment systems required to be installed by the Navy and Northrop Grumman. Collectively, just as the report has identified program schedules for the various alternatives, so to should the schedules for the other two remediation systems be identified. In addition, given the fact that 200 years of operation is a gross guesstimate, does the guesstimate account for the required hot spot remediation? Frankly, hot spot treatment required by the PRPs is crucial to the effectiveness of this program, and we believe that the State must be as diligent with compelling the Navy and Northrop Grumman to complete their programs for hot spot treatment as it is with this hydraulic containment program. Additionally, the evaluation concluding a 200 year operation duration should be substantiated in the report, especially as this number drove the statement regarding the billions of gallons that will be lost from the aquifer, which based on the above we disagree with anyway.

#### Treatment Technologies

We were very pleased that the report included 1,4-Dioxane as a contaminant of concern amongst the other VOCs on the chemical-specific ARAR table. This contaminant has been detected during the investigations conducted by the Navy and Northrop Grumman, so we know that it is a part of the groundwater plume. Based on some of the preliminary due diligence work conducted by a few public water suppliers, this contaminant is not removed by conventional treatment methods (GAC adsorption or aeration). The initial technology screening included in the report dismissed chemical/UV oxidation. Our understanding is that oxidation with UV is an effective treatment process for the removal of 1,4-Dioxane. This treatment methodology is also effective at destroying many other VOCs. So long as 1,4-Dioxane is a contaminant of concern, with which we agree, then we suggest the potential of utilizing advanced oxidation remain as a treatment train alternative.

#### Direct Re-Use of Treated Water

The report indicates that the direct reuse of the treated water for human consumption has been proven to be an effective approach in meeting remedial objectives and protecting public health, with a primary advantage of not wasting the pumped groundwater. First, as discussed above, we feel that opportunities exist to recharge the treated groundwater, in whole or in part, rendering this advantage insignificant. Second, as we have communicated to the State many times, treatment systems for drinking water protection are not guarantees. Public water suppliers spend tremendous time, attention and resources in operating and monitoring treatment facilities to protect public health, and we do an outstanding job. However, system wear or failure is always a risk. Assuming that a treatment system will guarantee the delivery of clean drinking water is not advisable. Even though not a suggested alternative, we would suggest removing the discussion from the report.

The Massapequa Water District is thankful to be a partner with the State and pleased to be supportive of this mission. We look forward to the next steps in the planning, design and implementation of the hydraulic containment system and stand ready to assist the State as necessary.

Very truly yours,

**Massapequa Water District**



Stan Carey  
Superintendent

cc: Assemblyman Joseph Saladino  
Basil Seggos, NYSDEC Commissioner  
Martin Brand, NYSDEC Remediation Bureau  
Carrie Gallagher, NYSDEC Regional Director  
Venetia Lannon, Deputy Secretary for the Environment